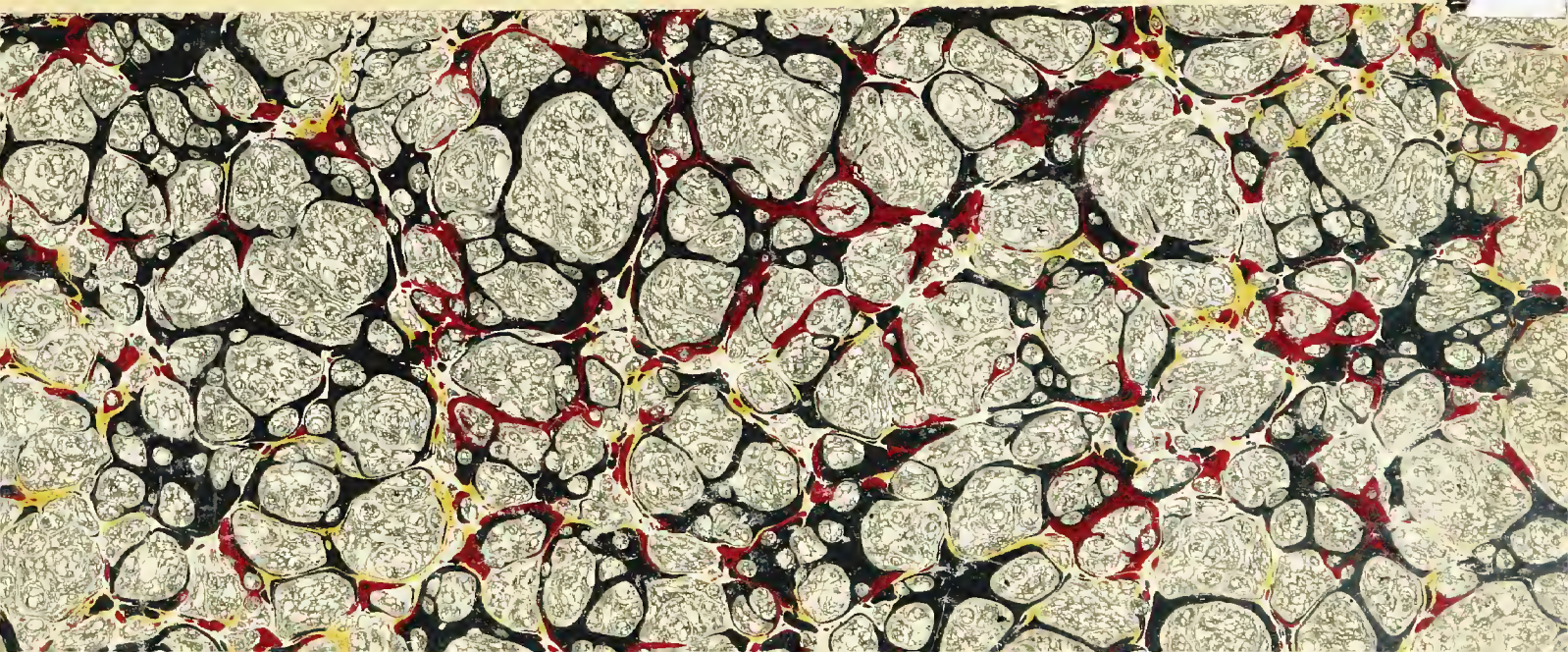

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SCHOOL DORMITORIES.

By CLEMENT DUKES, M.D., B.S., M.R.C.P. Lond.

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By CLEMENT DUKES, M.D., B.S., M.R.C.P., LOND.

Physician to Rugby School, and to the Hospital of St. Cross, Rugby.

MR. CHAIRMAN, LADIES and GENTLEMEN :—In this Table I have shown the heads into which I have divided my paper. Much that I had intended to speak of I have had to withdraw so as not to trespass over the allotted time.

I have chosen the subject of "School Dormitories," because they are about the worst feature in all our boarding schools—for boys and girls—in Great Britain. Not that I wish to imply that they are all uniformly bad: far from it. Some, I am thankful to say, are everything that could be desired by the most exacting sanitarian; but this number, I believe, would be found not to reach 10 per cent. of the whole: while, of the remainder, 50 per cent. would be found to be as bad as they could possibly be, and 40 per cent. just passable, but nothing like what they should be.

It is an incontrovertible fact, that in many of our schools, of which we Englishmen are so justly proud, the dormitory accommodation is actually worse than that insisted on by Government for the paupers in our workhouses—there being less than 300 cubic feet per head.

And in those schools where the boys live and sleep in *cubicles*, it is quite refreshing to find 700 cubic feet provided —which is the lowest limit allowed for our paupers, who occupy the same room day and night, in our workhouses.

But what is the most unsatisfactory fact is, the expensive school—where a parent thinks his child is sure to be

placed in the most favourable hygienic conditions because he pays so much—is often the worst of all. When pupils go home for the vacation looking unwell, the school is frequently abused, either because "the boy or girl has been worked too hard," or else it is said that "the food has been insufficient in quantity or inferior in quality."

Now nine times out of ten this is not the cause at all: the whole secret is, the pupil has not been allowed sufficient fresh air *indoors*, and so has had to breathe the same air more than once.

Air is the greatest essential to life—greater far than water or food. We cannot exist a few moments even without it; and yet schools, as a rule, provide plenty of food, are less particular about the quality of the water, and have very little regard as to the amount—and therefore as to the quality—of the air.

Not that the boy does not get out of doors enough, for this out-of-door life in most schools for boys—would that I could say the same for girls—is ample; but because of the insufficient air space indoors, especially in the sleeping apartments, where a third of every day is spent. This means, that in a term of three months, one month is passed in the dormitory, where the air space is, as a rule, so deficient that it literally stinks in the morning after eight hours' occupation.

Fortunately, so much time is spent in the fresh air, that the evil, to a great extent, is counteracted; yet, I would urge, that no growing boys or girls can thrive as they should and would, while they spend a third of their time under these most unfavourable conditions. To some boys, it apparently does not make much difference; but to many a delicate boy, it makes all the difference in the world, whether he shall grow up strong and hearty, or show some latent disease that need not otherwise have developed, —nay, could not have developed during a favourable school-life. Parents should understand that hard work rarely makes a boy look ill, provided he is well-fed, properly housed, and with regular exercise. I have, how-

ever, known disease and death to be caused by compelling boys to work hard under the most unfavourable conditions that it is possible to conceive.

Dormitories are provided for the exercise of that most important function called *sleep*, a plentiful supply of which I regard as essential as a plentiful supply of food for the young and growing. Yet, there is a tendency in all our schools to cut sleep too short. All scholars suffer from it more or less; but it is not sufficiently recognised by teachers: in fact, the only persons who fail to recognise the fact at all are those who should see it first,—the masters and mistresses themselves.

Parents are cognizant of the fact only too well, during the first few days of the vacation; and are apt to think their children will sleep away their senses, or that they are becoming regular sluggards: the fact being, that they are only making up for lost time.

Those who suffer most from deficient sleep are the *younger* boys and girls; and were it not for the vacation stepping in every three months, I do not believe they could go on with their work and yet retain their health.

Those also who suffer considerably are girls during their early development into womanhood, when they are growing rapidly, thickening out in all proportions, and establishing new functions: they need then a very large amount of bodily and mental rest and sleep if they are to grow strong bodies and make good brains.]

Cubicles.—The cubicle is a small room, with four walls, which serves as study and bedroom combined. Each boy has one to himself usually; sometimes brothers have a larger one between them.

They measure, as a rule, about $8 \times 8 \times 10 = 640$ cubic feet; I have seen them larger, and I have seen them smaller. I have also seen them so dark as to resemble a prisoner's cell far more than the abode of a boy night and day during eight months in the year, whose parent pays heavily for the privilege of his being confined in it. Here, with insufficient air-space, breathing the same air day and

night, with insufficient light and ventilation, and with every facility for secret vice, the boy is expected to thrive mentally, morally, and physically; and is often abused by his parent—who pays from £100 to £250, for eight months in the year—because he does not get on well with his work, or does not seem healthy and strong, or because he does not turn out well morally.

Cubicles in large dormitories.—In this plan we have a very large room, partitioned off into small rooms, or cubicles, on either side of a passage down the centre of the room, into which the door of every cubicle opens.

The room itself, about 12 feet high, contains from 20 to 40 cubicles, each being about 8 to 9 feet square, and separated from the adjoining one by a wooden partition about 8 feet high, and from the one on the opposite side by the passage.

Above these partitions, between them and the ceiling, is a height of 4 feet, which space is common to all the cubicles in the room.

There is therefore a good supply of air for the day *or* the night, but a most insufficient supply for work by day, candles or gas by night, and then sleep; for, being occupied, it is always impossible to get windows open sufficiently so as to render them as sweet and wholesome as they should be, artificial ventilation not being enough, unless the air be warmed.

Let us look at the winter for instance, when school and tea are over, boys will be in these cubicles by 6·30 p.m.; and there they will remain—(with candles, lamps, or gas, burning until 10 p.m.)—until 6·30 a.m.; the air being very scantily changed throughout the 12 hours.

Is this healthy? Is this placing the young under the most favourable circumstances we can during their growing years? It is really indefensible.

Moreover, the evil of cubicles is great, from a moral point of view. The upholders of them, whose name is legion, deny that they are bad, and that boys keep to their own cubicles by night. I know better! and probably those

who ought to know this best of all, are the only persons who know nothing about it. Why, I know one of our largest, and justly most popular schools—which would probably deny the existence of the evil altogether—where they put up ~~perhaps~~ a large heavy board on the top of the partition between each cubicle, about 8 × 3 feet, which they fastened up by wire, so that any boy who attempted to get from one cubicle to another would break the wire, and pull the board down, and thus be detected. Any boy of mettle, from his delight of mischief alone, could and would easily overcome this little difficulty, in the shape of a trap set for him by some authority who does not know boys.

Dormitories.—Very strongly indeed do I hold that dormitories should be places to sleep in only, and should be always closed to all boys by day. It is better for the rooms themselves, for cleanliness and ventilation ; and far better for the boys. They should be large rooms, and open to the view of every occupant of the dormitory : from ten to sixteen beds in each is a good size.

Size of Place for Sleeping.—Parkes showed that every adult requires about 800 cubic feet of space for breathing in, and that with efficient ventilation besides, so as to render the air sufficiently pure to carry on respiration without draught.

He showed that air containing more carbonic acid than ·6 per 1,000 volumes is poisonous ; though it is the foul organic matter, and the excess of moisture, that is most perceptible to the senses, and renders the rooms what is called "stuffy."

To prevent this occurring, 3,000 cubic feet of fresh air are required to be replenished every hour. If this air be changed by ventilation more frequently than three or four times an hour such a draught is occasioned, as no one can comfortably bear night *or* day, in our climate.

Therefore, 800 cubic feet of space should be supplied for each boy.

Huxley says, a healthy man of eleven stone, ought to have at least 800 cubic feet of well-ventilated space.

John Howard, the far-seeing philanthropist, said a century ago, "It may be asked of what size I would wish prisoners' solitary night rooms to be? I answer 10 feet long, 10 feet high, and 8 feet wide"; i.e., 800 cubic feet. If such be requisite—as it undoubtedly is—for prisoners, how much more is it for growing girls and boys? Are our sons and daughters, whose education is so costly, to be worse housed than our prisoners and paupers?

But masters and mistresses will say, "I don't see the necessity of this large air space for sleeping in, when I have provided efficient ventilation."

The answer to which is, if you have such a small cubic space per head that, to get efficient ventilation, the air has to enter with a rush, no boy or girl will put up with it: consequently one sees all the ventilators stopped by the pupils with various articles of clothing, from a sock to a dressing-gown, according to the size of the ventilator.

Of course in warm weather air may enter very rapidly without perceptible draught, and so less cubic space may suffice then. Or, if the incoming air be artificially warmed, it can be admitted much more freely without draught being felt, and then again a smaller cubic space will yet be sufficient; but, as a rule, in our climate 800 cubic feet of space per head is what ought to be provided in all school dormitories. Be it ever remembered that those who are growing cannot thrive without the purest air; they are peculiarly sensitive—together with the young of all animals—to impure or pre-breathed air.

Many will urge that if 800 cubic feet of space be required by day, half that amount is enough for bedrooms, because respiration is slower, and all the tissue changes are less active. Let those who hold this comfortable theory taste a little practical experience, and enter a dormitory immediately after it has been vacated, after eight hours' occupation, with 400 cubic feet per head alone supplied: their noses will tell them the truth, and make them retire quicker than they entered, and show them the futility of their theory.

Superficial area.—It is a point of great importance in

the dormitories of schools, that sufficient superficial area should be provided for each scholar, and that beds should not be placed side by side so close together that you can only just get between them — and that for more reasons than one. I have seen them so nearly touching each other that they were almost one bed; and thus necessarily entailing nearly all the evils of boys sleeping together, which should never be allowed. Another disadvantage of this close packing is, that if an infectious illness attack a pupil in one bed, the occupants of the adjoining beds are almost sure to be infected too. Therefore superficial area is of great consequence; and taking a school-bed at 3 × 6 feet, the superficial area should be quite four times that, 6 × 12 feet, and the room 12 feet high. This gives 864 cubic feet per head, which will allow for the air which is displaced by the furniture of the room, and the body of the boy, and yet give the full complement of 800 cubic feet per head. A friend of mine has increased the distance between the breath of each boy, so as to minimise infection, by placing the beds with heads and feet alternately to the wall.

By these means plenty of air will be allowed to every scholar, which is no little matter. In a large school there are pupils of every type of constitution, and every degree of stamina, representing every constitution under the sun. Among them many from a tubercular stock. Who will venture to gainsay the vast difference it makes to that unfortunate boy or girl, during his years of development, whether he have plenty of fresh and pure air, or whether he be compelled to breathe the same air over again? It may make this difference to him, whether he become a tubercular or non-tubercular individual: whether he die early or live to maturity.

Construction of Dormitories.—One word only on this subject: 1. The *walls* should be what are termed "Hollow Walls," they are warmer in winter, and cooler in summer; and if ventilating bricks be placed in the outside wall below, and in the inside wall near the upper part of the

dormitory, there will be a continual current of fresh air entering the dormitory, indirectly, and therefore without a rush.

They should be either lined on the inside with varnished match-boarding: or plastered, and the surface of the plaster coloured with "silicate," or else with paint: both of which should be washed annually.

2. The *floor* should be laid so as to obtain a level and smooth surface, with an absence of cracks and bad joints: all the joints should be tongued: the skirting boards should be let into a groove in the boards of the floor, so as to prevent an accumulation of dirt. The whole should be stained and varnished, so that it may be bees'-waxed from time to time in lieu of washing.

Parquet flooring is excellent; but carpets should on no account be used.

3. The ceiling may be of plaster, whitewashed; or, better still, of match boards stained and varnished, which can be annually washed.

Sanitary Conditions of Dormitories.—In speaking of these our first consideration must be that of—

1. *Aspect.*—For the young and growing, the sun is always most invaluable, even in dormitories which may be unoccupied during the time the sun is on them.

The southern aspect is the best of all. A dormitory which faces thus, is far more healthy than one devoid of sun; for it is warmer and drier; the air is purer; the organic matter given off from the inmates is burnt up more completely; and mildew is unable to exist there.

2. *Light.*—*Natural* light is obtained by means of windows, which should be ample, at least $\frac{1}{10}$ of the floor area. They should reach the ceiling above, so that when open at the top they may clear the upper stratum of air; but should not reach too low down, but be well clear of the heads of the beds, and thus not occasion draught there. They should be well opened by day and in winter closed before sunset. Where possible, they should be placed on opposite sides of dormitories.

Artificial light should be obtained by the "Sun-light ventilators": or Benham's ventilating globe light; and if left burning slightly all night, the rooms would be more healthy from a better ventilation, and from a moral point of view.

Ventilation.—I have already said a great deal concerning the importance of fresh air, and plenty of it, for dormitories. Time will not permit me to say more than a word or two concerning the modes by which this may be carried out. Fresh air may be obtained by means of the open chimney, by ventilators placed over doors into passages, which in their turn should be well ventilated; by Ellison's conical-brick-ventilators; by Tobin's system; by Bird's method with the window sashes; by Boyle's air-pump ventilator; and by Sherringham's and Arnott's valves.

Warmth for school dormitories, I regard as an unnecessary luxury; but, where desired, it can be provided by the open fire or by hot-water pipes.

Warmth and Ventilation combined is the only form which should be used, if warmth be desired at all, a point which I should not myself advocate, unless the school be placed in a cold and damp situation,—in which case it had better not exist at all, as such a site is most unsuitable for the education of the young.

It can be carried out by hot-air flues; by Galton's grate; the Calorigen; and the Euthermic.

It should never be effected, as is so constantly the case at present, by freely lighting the gas for an hour or two before bed time. This is bad in the extreme: better have no warming than such warming, which burns up all the fresh air, and poisons the rest with deleterious gases. It may, however, be well and legitimately used to assist in warming and airing the dormitories during the last few days of the vacation, before the scholars return to school, provided the windows be left open for an inch at the top.

Washing Arrangements.—These should be well arranged so as to allow of the use of plenty of water for washing purposes, with as little trouble as possible. I have had

fixed in a new boarding-house, Jennings' tip-up basins; the pipes from them open below into the air-chamber of an Edinburgh trap. Each basin is supplied with a tap, by which means there is always an abundance of water.

Slop-receiver.—Dormitories are sometimes converted into poisonous chambers through an improper water-closet in the neighbourhood; through an untrapped housemaid's sink; through a bath-waste or through a cistern over-flow pipe, being simply ventilators to the sewer. Now this is a criminal fault.

The housemaid's sink, or slop receiver, should be placed as handy as possible for the convenience of servants. It should be of glazed earthenware, or still better of glass; and the pipe from it should be syphoned immediately beneath the sink, so as to prevent the entrance of air by it. Below, it should terminate—together with the bath-waste, the cistern overflow, and the rain water stack pipe—either in the air-chamber of such a trap as the Edinburgh, or else over the iron grating of an open gully trap.

The night water-closet should be conveniently situated, and should be well-ventilated into the open air at the floor and ceiling lines; no slops should be emptied down it. The soil pipe from it should not communicate directly with the sewer but only through such a trap as the Edinburgh air-chambered sewer trap, to be especially recommended to schools, not only on account of its efficiency, but because it is the invention of a school-master, one of the greatest sanitarians of the day and a most intimate friend of mine.

Baths.—Close to the dormitories there should be a sufficient number of baths for every boy to have his daily morning bath; it is not only a luxury, but a necessity for health and cleanliness in the young and growing. I know the answer will be, "The thing is impossible in a large school." This is not so, for it is already an accomplished fact.

Beds. — Size. — The beds in most schools are about 3×6 ft. in size, and as I have stated before, there should be allotted to every boy four times this size of floor space, so

that there would be over three feet between each bed, side by side, and twelve feet between the beds on the opposite sides of the room.

Or, if the partitions be used, the floor space between each bed is very much increased by placing the bed against one of the partitions, and if these be not too large, good is gained by the plan, for they do not serve as screens; though on the whole, all things being considered, I think dormitories without them are better.

Bedding. — It is always best in schools, whether for boys or girls, that mattresses should be used for sleeping on, a horse-hair mattress being the best and cheapest in the long run.

Sheets.—The most appropriate sheets for those who are growing are cotton: they are preferable to linen, as they are warmer. For all at school they are the best, but for those who suffer from cold and moist feet, or those who are liable to chilblains, they are an essential to their comfort.

Blankets.—It is better not to sleep too warm, for sanitary as well as moral reasons. All clothing at night should be short of producing moisture of the skin in bed. It is more cleanly, less debilitating, and the body will be more inclined to get up in the morning with freshness. All the coverings to the bed should be freely pervious to air, and good absorbers of moisture (the insensible moisture that is always coming off from the skin), therefore blankets are the best bed coverings, better far than eider-down *quilts.*

The bedding, blankets, pillows, &c., should be allowed time to air and dry, so as to get rid of the moisture and organic matter with which they are saturated from their daily use. Yet, even in dormitories which are used for sleep only—still more in cubicles, where they must be ready for use immediately after first lesson—how few allow any ventilation of the beds and bedding at all; for as soon as the occupants are out of them they are re-made. Whereas, instead of being made up as soon as they are empty, the proper plan is to leave them open, so that mattress, blankets, &c., can be ventilated all day, and only re-make them when the windows are closed in the evening.

Moreover, the same plan should be followed in the vacation, and all the beds and bedding should be well spread out the day the scholars leave school, and there remain until they return; instead of which they are usually packed in a heap, and there the organic matter decomposes.

Well-aired beds.—There are few schools in which the well-known advertisement, which occurs in our homely country inns—"Well-air'd Beds"—could be inserted with truth.

Pupils go home for the vacation: their mattresses are stacked in a heap as soon as they leave; they are replaced the day before the return to school, and the pupils go to bed on them. This is the usual sequence of events in the history of the school-bed.

Now this is not as it should be; for unaired beds are a frequent source of ill-health: unoccupied beds get damp when not in use, and it is requisite, before the re-assembling of the school at the commencement of each term, that every mattress, &c., should be carefully aired. This should be systematically carried out under the superintendence of the responsible master.

Dormitory morality.—I do not propose, nor would time permit me to discuss this question in its entirety. I cannot, however, pass it over in silence.

In boys' schools, at the head of these *dormitories* should be the best senior boys, or præpostors, that the house possesses.

Each of these boys should be responsible for the conduct of the dormitory under his supervision. He should be the trusted friend of the master, and of every upright and pure boy; but the enemy of every boy capable of any impure hint, word or act. By his personal influence alone he may, as I have known, keep the whole tone of a house—and especially of a dormitory—as pure and healthy as could be wished by even the most fastidious.

If small dormitories of two or three beds be already in existence, and must be used, the responsibility of the master in the choice of whom he should place in them is severe—too severe, I think, for such dormitories to exist at

all; for on this choice may depend the whole character and after life of a boy.

Further, I cannot but regard *cubicles*—for sanitary and moral reasons—as the worst invention ever planned for schools; for evils are possible in cubicles and small rooms which are improbable, or next to impossible in large open dormitories, unless the house or school be corrupt to the core.

They are from my point of view a direct invitation to a boy to develop and teach secret acts, which he dare not and would not commit before a whole room; and I think no school has any right to put this unnecessary temptation in any boy's way, however good he may be.

> "How oft the sight of means to do ill-deeds,
> Makes ill-deeds done!"

To the thoughtless parent these cubicles no doubt do look cosy and private; but it is this very privacy that is their evil, for they furnish an opportunity to a temptation to the commission of acts which could not be committed in a properly regulated open dormitory, having a senior boy, or præpostor, chosen for his *character* rather than his ability, at the head of it.

On parents, therefore, really rests the onus, if they ask for these cubicles, or place their sons where they exist. On their shoulders—not the master's nor the boy's schoolfellows—rests the blame if their sons become corrupt.

Cubicles in themselves may be everything that can be wished for, where a healthy tone and conduct exist; but where there is the least unhealthiness in tone or desire—as there always is amongst a number—they foster it, and are an invitation to it by the privacy they afford.

In the large open dormitory the prefect can see all in the room, and for this purpose sufficient light should be provided. But the secrecy of the cubicle at once increases the power of the bad boy, and takes from the prefect the possibility of supervision.

The argument of those who advocate cubicles is that

the open dormitory tends to vulgarity or coarseness of manners, through its lack of privacy.

If this were inevitable, I would yet say, Let us have this open coarseness of manners rather than that secret vice which undermines the whole character and constitution and is the primary cause of a large proportion of the evil in "Society."

But I would urge that this coarseness of manners is not inevitable; and I would maintain that with a properly constituted prefectorial system, dependent on *character*, as well as on *position* in school, the tone of a dormitory could be, would be, and ought to be, as good as could be obtained amongst human beings.

As I have entered upon the question of immorality in dormitories, I cannot conclude without saying that, in my view, it is the imperative duty of the physician to speak plainly of the conditions which foster it, so that he may do his utmost to mitigate, if he cannot get rid of, a widespread evil. I am sorry to have had to speak of it, but it is so interwoven in the question of school dormitories that I should have failed in my duty had I avoided the subject.

My firm opinion is, that as soon as school authorities will recognise the possibility of the existence of this evil in *their own* schools more than they do—will face it rather than ignore it; will endeavour to prevent it rather than cure it—then, and not till then, will it be successfully met; and to *prevent* it, I can only repeat again, that nothing is more effectual than a reasonable prefectorial authority in large open dormitories.

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